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UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

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REPLY TO: 3420

DATE: JUL 24 1987

SUBJECT: Evaluation of Areas Proposed for Dwarf Mistletoe Suppression in FY 88

TO: Forest Supervisor, LTBMU

Enclosed is an evaluation of developed recreation sites on the LTBMU that have been proposed for dwarf mistletoe suppression and FPM funding in FY 88. This proposal has been documented in an EA, "Dwarf Mistletoe Suppression in Developed Recreation Sites", prepared by Jim Schellenger.

Based on this evaluation, FPM recommends that the proposal for funding be modified. Kaspian Campground should not be treated as proposed. Treatments at Zephyr Cover Stable, 64 Acres, and Round Hill Pines Resort should be postponed until determinations on their future use are made. Rather than treating Cathedral Home Tract and Tallac Historic Sites in FY 88, treatment should be delayed until FY 89 so that presuppression surveys in FY 88 can determine the requirements for each area. The remaining areas are suitable for treatment with some modifications as noted in the report.

In order for FPM funding to be approved for FY 88, the Project Proposal and the economic analysis and Appendix A of the EA need to be revised and resubmitted. A table listing each area and the proposed type of treatment(s) (tree removal, branch pruning, broom pruning, presuppression survey) should also be submitted.

Gregg DeNitto will continue to work with LTBMU personnel to see this project to its successful completion. Gregg can be contacted at (415) 556-6940.

JOHN NEISESS
FPM Program Leader
State and Private Forestry

Enclosure

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FOREST PEST MANAGEMENT
Pacific Southwest Region

Report No. 87-11

3420 Evaluation
July 24. 1987

EVALUATION OF A PROPOSED DWARF MISTLETOE SUPPRESSION PROJECT IN DEVELOPED RECREATION SITES, LAKE TAHOE BASIN MANAGEMENT UNIT

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ABSTRACT

Developed recreation sites on the LTBMU were evaluated for possible dwarf mistletoe suppression projects in FY88. Three dwarf mistletoe-host combinations were examined: white fir dwarf mistletoe, lodgepole pine dwarf mistletoe, and western dwarf mistletoe on Jeffrey pine. Proposed treatments included tree removal, branch pruning, witches' broom pruning, and combinations of the three depending on the site. The following areas are amenable to treatment in FY88: Bayview Campground, Upper and Lower Emerald Bay Home Tracts. Kaspian Picnic Area, Wm. Kent Beach and Campground, Twin Crags Home Tract, Zephyr Cove Beach, Round Hill Pines Beach, South Upper Truckee Home Tract, and Pope Beach. Cathedral Home Tract and Tallac Historic Site need more detailed presuppression surveys in FY88 to determine courses of action. A suppression proposal could then be made for these areas for FY89. Zephyr Cove Stable, 64 Acres, and Round Hill Pines Resort need to have objectives and site plans developed before the expenditure of FPM funds can be approved. The efficacy of the proposed treatment at Kaspian Campground is unknown and, therefore, suppression funding cannot be authorized.

INTRODUCTION

The Lake Tahoe Basin Management Unit has proposed dwarf mistletoe suppression projects for developed recreation sites in FY88 (see 3450 Memo, April 6, 1987, and supporting EA from Forest Supervisor, LTBMU to Regional Forester, R5). On June 4, 1987, I met with Jim Schellenger and Tom Hintz from the LTBMU and visited these sites. The purpose of the visit was to examine each site, to determine the appropriateness of the proposed treatment, and, where necessary, to provide additional technical information that might alter the proposed treatment.

The following recreation sites were visited:

Cathedral Summer Home Tract
Bayview Campground
Upper Emerald Bay Summer Home Tract
Lower Emerald Bay Summer Home Tract
Kaspian Picnic Area and Campground
Wm. Kent Beach
Wm. Kent Campground
64 Acres
Twin Crags Summer Home Tract
Zephyr Cove Resort
Round Hill Pines Resort
South Upper Truckee Summer Home Tract
Tallac Historic Site
Pope Beach

Western dwarf mistletoe, Arceuthobium campylopodum, is the species of concern on Jeffrey pine in most areas. In Kaspian Campground, suppression of white fir dwarf mistletoe, A. abietinum f.sp. concoloris, is proposed. The South Upper Truckee Summer Home Tract and Pope Beach have lodgepole pine dwarf mistletoe, A. americanum. The objective of the proposed suppression actions in all sites is to improve tree health and vigor by reducing the amount of dwarf mistletoe in a stand and in individual trees. A concern that limits treatment in most stands is to retain as many living trees as possible. Each site will be discussed separately.

OBSERVATIONS

Cathedral Summer Home Tract

This home tract is situated on the west shore of Fallen Leaf Lake. Dwarf mistletoe is in the overstory and understory Jeffrey pine. The homes are near each other and to the trees.

It was planned that broom and branch pruning with limited tree removal would be performed. The approach is reasonable and feasible and can be effective when the proper treatment is selected for each tree. In this particular site, however, the amount of work needed was significantly underestimated.

It is recommended that this area not be treated in FY88, but rather a more intensive presuppression survey be done. This survey can be funded with dwarf mistletoe suppression dollars in FY88. From the results of this survey, a better estimate of the time and resources necessary for a thorough, effective project can be determined. A separate proposal for this area can then be submitted for possible FY89 funding.

Although there is the desire to retain as many trees as possible on the site, care must be taken not to compromise the effectiveness of the operation by leaving and/or pruning heavily infected individuals. Although eradication is not an objective, leaving heavily infected trees will only accelerate the

reinfection process by providing a large source of inoculum. Sufficient trees of different species are present in this area that some tree removal should not adversely affect the desired visual and recreation objectives.

Bayview Campground

At the trailhead at the southwestern end of this campground are several infected Jeffrey pines. These infected trees are screened from surrounding Jeffrey pines by non-host species. Because of the limited dwarf mistletoe infections, it is possible to eradicate the parasite from this area without significant changes in campground appearance. A combination of tree removal and pruning would be necessary. Selective removal of the more heavily infected trees and pruning of all branches up to 2 whorls above the highest visible infections in residual trees would be required. Monitoring and follow-up treatment would be necessary in 3-5 years to assure successful eradication.

Eradication of dwarf mistletoe as an objective in this campground is not the only possible alternative. Selective pruning, as proposed by Basin personnel, would reduce new infections for a time and possibly prolong individual tree life. In time, however, the situation would worsen and this pocket of infection could serve as a source to infect trees in the surrounding area. By taking a more aggressive approach now, future concerns about dwarf mistletoe in this area would be eliminated. Adverse effects on recreation and visual objectives, if any, would be minimized by taking action now.

Upper Emerald Bay Summer Home Tract

This home tract is on the north side of Highway 89, north of Emerald Bay. In this tract are scattered overstory Jeffrey pines with dwarf mistletoe witches' brooms and infected branches. Some of the understory Jeffrey pines are also infected. The proposed course of action is to prune the overstory and remove heavily infected understory and infected understory of poor vigor.

This is an effective approach in this area. Pruning activities should be concentrated on removing witches' brooms and not infected branches, except to simplify broom pruning and reduce any undesired crown raggedness.

Lower Emerald Bay Summer Home Tract

This home tract is on the south side of Highway 89, opposite the Upper tract. The dwarf mistletoe situation is similar to that in the Upper Tract, but the infection levels are higher, both on an area basis and in individual trees. Pruning and tree removal are proposed for this recreation site.

Because of the high levels of infection, a number of overstory trees will need to be removed. Other trees will require broom pruning to prolong their lives. Heavily infected trees that must be retained because of other resource requirements need to be examined carefully to determine if any pruning activities would be beneficial. It may be best to leave trees untouched that are so heavily infected that they would receive minimal benefit from pruning.

Kaspian Roadside Picnic Area

This small day use area is between Highway 89 and Lake Tahoe. There is private property on either side of the parcel. A bicycle path passes through this area near the highway. Infected Jeffrey pines intermix with white firs and incense-cedars primarily at either end of the parcel. The proposed treatment is for some pruning and tree removal.

The planned work is feasible in this area with certain cautions. At the southern end of the picnic area the dwarf mistletoe infestation continues onto private land. Because actions will not be taken on private land, there is the probability of reinfection from above. A 75-100 foot buffer can be created to isolate the picnic area trees from this source through selective tree removal at the south end. There are enough non-host trees present to provide a natural buffer if the few Jeffrey pines that are also present are removed. These tree removals should not affect visual or recreational qualities because of the abundance of non-host trees present. The northern parts of the area can then be treated as planned.

Kaspian Campground

This walk-in campground is on the opposite side of Highway 89 from the picnic area. It had been thought that there was a limited infestation of white fir dwarf mistletoe in the camping area. Our observations during this visit revealed that the extent of the infestation was greater than originally believed.

Following observations and discussions in the field, it was decided that direct dwarf mistletoe suppression as planned was not a reasonable approach. Because of the large area and number of trees that would require treatment, there was concern that too much activity and site disturbance would be necessary and would interfere with other objectives. This dwarf mistletoe does not cause the development of witches' brooms to the same extent as the species on Jeffrey pine and its impact on trees is not as well documented. We do not have experience with the pruning of this species of dwarf mistletoe and do not know if pruning would be effective. Because of the density of foliage, small size of the mistletoe plants, and lack of brooming, the ability to see infections during pruning would be more difficult and some infections would probably be missed.

We cannot support treatment of this area for dwarf mistletoe suppression as prescribed using FPM funds. Rather, if the LTBMU wants to take a proactive approach, a prescription of sanitation thinning to reduce the stocking density and discriminate, where possible, against infected white firs would be as, or more, effective.

Wm. Kent Beach

There are few Jeffrey pines on this small Forest Service parcel between two pieces of private property. They provide most of the shade and cover on the area. Some of these trees are moderately to heavily infected by dwarf mistletoe. They are not threatened by infection from adjoining properties.

The purpose of any treatment would be to reduce further spread of dwarf mistletoe and to prolong the lives of specific trees.

The prescription for this area, pruning and some tree removal, is appropriate.

Wm. Kent Campground

This campground is on the west side of Highway 89, south of Tahoe City. Near site 23 is a small aggregate of Jeffrey pine with dwarf mistletoe. Jeffrey pines immediately surround this aggregation and are threatened by infection. Most trees have limited infections in the lower crowns. Eradication of this infestation can be attempted through some tree removal, but mainly by pruning. Care will be necessary in selecting trees that fit established criteria for pruning and assuring that all infections are removed. Trees in the vicinity will have to be examined closely to assure that all infected trees are pruned or removed. Because of latent infections and the possibility of missed infections, evaluation and possible retreatment of the area will be necessary in 3 to 5 years.

64 Acres

This area is near the intersection of Highways 89 and 28 in Tahoe City. A proposal for a VIS center and day use facilities has been made for this area, but a site plan has not been developed. Dwarf mistletoe in Jeffrey pine is primarily along the beach and near the road entrance.

The prescription is to have a sanitation thinning in the area to remove suppressed trees and trees heavily infected by dwarf mistletoe. FPM funds would be used to prune any residual trees of dwarf mistletoe.

Funds should not be invested in this area until a site plan has been developed. When it is known where buildings, roads, and other improvements will be located, then suppression activities, either tree removal or pruning, can take place. Some improvements could be located to take advantage of disease pockets and remove infected trees rather than healthy ones.

Twin Crags Summer Home Tract

This is a small tract of summer homes on the hillside above Highway 89, along the Truckee River. The stand is comprised of large Jeffrey pines and white firs around the cabins with no pine regeneration. Some of the large Jeffrey pines are candidates for pruning of witches' brooms. Others are too heavily infected to effectively be pruned. Rather than remove this latter category of trees, they can be retained for visual objectives. There is no pine regeneration that can be infected and infections will pose little threat to surrounding trees. Recognize that these heavily infected trees could serve as foci for bark beetle activity and should be monitored yearly to reduce that hazard.

Zephyr Cove Beach

A dirt road parallels the beach on the west side of Highway 50 in this day use area. A number of infected Jeffrey pines are along this road. Presently,

infection levels are low and the area of infestation is limited. Because of the single species, even-aged stand structure the dwarf mistletoe will spread and slowly intensify between the beach and the highway.

A pruning and tree removal operation is proposed and would be effective in reducing the future impact of the disease in this area. Care must be taken in selecting trees and branches for pruning because of the presence of some Elytroderma needle disease witches' brooms. Dwarf mistletoe infections should be confirmed by the presence of plants prior to any treatments.

Zephyr Cove Stable

This area is on the east side of Highway 50, across from the resort and marina. A campground and stable occupy part of the site, while much of it is still undeveloped. An evaluation of this area, as well as the Zephyr Cove Beach, was done in 1984 (see FPM Report No. 84-36, September 7, 1984). A campground is proposed for much of the undeveloped area, but funding and commitments have not been finalized.

Western dwarf mistletoe is present in low to heavy levels throughout much of the area. Intensity increases from the flatlands along the highway up to the ridge. Treatments to suppress dwarf mistletoe should be postponed in this area until plans for any developments are confirmed. Then when the site layout is prepared, heavily infested areas may be at least partially treated by using them for locating physical improvements. Additionally, since this area is overstocked, sanitation thinning during site development can be used to eliminate many of the more heavily infected trees. After most of the site improvements have been made, then dwarf mistletoe suppression actions may be necessary and appropriate.

Round Hill Pines Beach

Round Hill Pines Beach was recently acquired and is operated on a special use permit. At the north end of the beach the Jeffrey pine are infected by dwarf mistletoe. Infection levels are severe in some trees, especially understory. The desire is to save as many trees as possible, particularly those in the overstory. Most of these trees can be pruned to reduce infection levels and the number of witches' brooms, while retaining sufficient crown to insure tree survival. Some tree removals will be necessary. These will mainly be from the heavily infected understory.

Round Hill Pines Resort

This area was recently acquired and consists of a number of structures and physical improvements. At this time, no decision has been made on the future use of this area. Until that decision has been made, the benefit of any treatments or vegetation management activities cannot be determined. When a determination has been made, then the appropriate dwarf mistletoe activities can be prescribed.

South Upper Truckee Summer Home Tract

This home tract parallels Highway 89 along the South Upper Truckee River. The homes generally are in a parallel strip along a side road. The principal tree species is lodgepole pine, with some Jeffrey pine scattered throughout. In this area lodgepole pine dwarf mistletoe is the species of concern.

Infections are causing witches' brooms in many of the trees and some trees are heavily infected. The proposal is to remove some trees and prune others. While this approach has not been applied to lodgepole pine in California before, the dwarf mistletoe species is similar enough to western dwarf mistletoe in its effects that comparable results and benefits can be expected. One concern is visibility of infection. Lodgepole pine dwarf mistletoe plants are rather small (1-2 inches high) and could easily be missed in selecting trees for removal or pruning. Extra care and time will be necessary during the presuppression survey to make sure that all trees are properly evaluated. Also, suppression crews may need additional training in seeing and recognizing this species of dwarf mistletoe before and during the operation. Closer monitoring will also be necessary, at least during the early phases.

Tallac Historic Site

The area proposed for treatment is near the intersection of the service road and the bicycle trail. It is beyond the limits of the Estates structures near the lake. Upon examination it became evident that the pocket of dwarf mistletoe extends beyond what was originally believed. The infestation extends over to adjacent Camp Richardson resort.

The stand is comprised of mature Jeffrey pines intermixed with some white firs. The infections are generally in the lower crown and have developed into witches' brooms in many cases. The original idea was to attempt eradication of the pathogen. Because of the extent of the pathogen, this area should be reconsidered for broom pruning only. The suppression effort should be extended over to Camp Richardson with a similar treatment. Any eradication efforts would require removal of more trees than desired to maintain the visual and recreation objectives.

Pope Beach

This is an even-aged lodgepole pine stand that extends from the beach to the parking area of this popular day use facility. Some thinning was done to improve stand health several years ago. Dwarf mistletoe is still a common component of much of this stand. Because of the stand structure and age, dwarf mistletoe will become an increasingly important stress factor on the trees.

Because of the complexity of treating this area and the investments already made in promoting stand health, several alternatives of dwarf mistletoe suppression were considered. These were do nothing; prune witches' brooms; and tree removal and branch and broom pruning.

By taking no action, dwarf mistletoe will slowly spread and intensify in this stand. With the increase in severity of dwarf mistletoe and the increasing

size of trees, they will become more susceptible to attack by mountain pine beetle. Some trees will be lost from this stand in most years. In droughty years the number of dead trees will increase.

Pruning only witches' brooms will alleviate one of the more severe stresses on many of the trees. This will aid in increasing the longevity of individual trees. It will also reduce the need to remove additional trees, thereby maintaining visual and recreation objectives. However, dwarf mistletoe will continue to spread and intensify and weaken additional trees.

The more aggressive approach includes tree removal as well as pruning. This requires removing the more heavily infected trees from the stand. Some small openings might be created in the canopy. In addition to pruning witches' brooms, some branch pruning may be necessary to reduce the amount of dwarf mistletoe in the stand and reduce future spread.

CONCLUSIONS

Most of the sites visited can be treated as proposed or with minor modifications. One site, Kaspian Campground, is not amenable to treatment because of questions of efficacy. Three sites, 64 Acres, Zephyr Cove Stable, and Round Hill Pines Resort, need to have objectives and site plans established before the expenditure of FPM funds for dwarf mistletoe control is approved. The Cathedral Summer Home Tract and Tallac Historic Site need a more indepth evaluation of the extent of dwarf mistletoe and the types of treatment desired. Presuppression surveys in these areas are appropriate for FY88 funding. A decision on the intensity and type of treatment for Pope Beach is required. This area could be treated in FY88.